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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/751,096

12/31/2003

Jason Lin

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08/25/2006

PARSONS HSUE & DE RUNTZ LLP
595 MARKET STREET
SUITE 1900
SAN FRANCISCO, CA 94105

EXAMINER

FARROKH, HASHEM

ART UNIT

PAPER NUMBER

2187

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/751,096

Applicant(s)

LIN ET AL.

Examiner

Hashem Farrokh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-7, 13-26 and 30-32 is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-12 and 27-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/19/06</u> . | 6) <input type="checkbox"/> Other: _____ |

This Office Action is in response to the Applicant's Remarks filed on June 6, 2006.

The instant application having application No. 10/751,096 has a total of 32 claims pending in the application; claims 5, 8, 11, 17, and 27 have been amended; no claims have canceled or added.

INFORMATION CONCERNING IDS:

The information disclosure statement (IDS) submitted on 7/19/06 was considered by the Examiner. The submissions are in compliance with the provisions of 37 CFR 1.97.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-4, 8-12, and 27-29 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Publication 2003/0163663 A1 to Aasheim et al. (hereinafter Aasheim).

1. *In regard to claim 1 Aasheim teaches:*

"A non-volatile memory (**e.g., paragraph 73 in page 6; Fig. 8**) comprising a plurality of data storage areas (**e.g. Sector Nos. 1-N in Fig. 8**), each of the data storage areas containing:" (**e.g., paragraph 73 in page 6; Fig. 8**).

"a user data portion;" (**e.g., see Data Region 804 in Fig. 8**).

"and an overhead data portion," (**e.g., see Metadata Area 806 in Fig. 8**).

"wherein the overhead data portion of each data storage area contains a first flag for indicating that another one of the data storage areas is correctly written." (**e.g., paragraph 73 in page 6; Fig. 8**). *Aasheim teaches the Metadata includes pointers that indicate the next region contains valid data. The pointer represents the flag recited in the claim.*

2. *In regard to claim 2 Aasheim teaches:*

"wherein the overhead data portion of each of said data storage areas further contains a second flag for indicating that the data storage area itself is correctly written." (**e.g., paragraph 119 in page 9**). *Aasheim teaches that a data valid bit is written if the result of write operation is successful (e.g., correctly written) or is not corrupt. The valid bit represents the second flag recited in the claim.*

3. *In regard to claim 3 Aasheim teaches:*

"wherein each of said data storage areas corresponds to a sector of data." (**e.g., see paragraph 73 in page 6; Fig. 8**).

4. *In regard to claim 4 Aasheim teaches:*

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“wherein the data storage areas are organized into a plurality of units of erase (**e.g., Block 0 to Block N in Fig. 4**), and wherein the overhead data portion of a predetermined data storage unit in each of the units of erase further contains a third flag for indicating that the unit of erase to which the predetermined data storage unit belongs has had an erase operation completed.” (**e.g., paragraph 106 in page 8; Clear Pointer 1502 in Fig. 15**). *For example clear or erase pointer represents the flag recited in the claim.*

5. *In regard to claim 9 Aasheim teaches:*

“wherein said data storage areas are written according to a predetermined sequence and wherein said another one of the data storage areas is the preceding data storage area in the sequence.” (**e.g., see Fig. 14 and relevant paragraphs in page 8**).

6. *In regard to claim 10 Aasheim teaches:*

“wherein said first flags and the content of the user data portions are protected by error correction code (ECC).” (**e.g., see paragraph 59 in page 5**).

7. *In regard to claim 8 Aasheim teaches:*

“A non-volatile memory (**e.g., paragraph 73 in page 6; Fig. 8**) comprising a plurality of data storage areas each of the data storage areas containing:” (**e.g. Sector Nos. 1-N in Fig. 8**).

“a user data portion;” (**e.g., see Data Region 804 in Fig. 8**).

“an overhead data portion (**e.g., see Metadata Area 806 in Fig. 8**), wherein the overhead data portion of each data storage area contains a first flag for indicating that

another one of the data storage areas is correctly written (**e.g., paragraph 73 in page 6; Fig. 8**), wherein said first flags are each composed of multiple bits.” (**e.g., paragraph 92 in page 7**). *Since the write pointer points to next available free sector therefore inherently is multiple bits.*

8. *In regard to claim 11 Aasheim teaches:*

“A non-volatile memory (**e.g., paragraph 73 in page 6; Fig. 8**) comprising a plurality of units of erase each having a plurality of data storage areas, each of the data storage areas containing:”

“a user data portion,” (**e.g., see Data Region 804 in Fig. 8**).

“an overhead data portion (**e.g., see Metadata Area 806 in Fig. 8**), wherein the overhead data portion of a predetermined data storage unit in each of the units of erase further contains a flag for indicating that the unit of erase to which the predetermined data storage unit belongs has had an erase operation completed.” (**e.g., paragraph 106 in page 8; Clear Pointer 1502 in Fig. 15**). *For example clear or erase pointer represents the flag recited in the claim.*

9. *In regard to claims 12 and 29 Aasheim teaches:*

“wherein said flag is comprised of multiple bits.” (**e.g., paragraph 92 in page 7**). *Since the write pointer points to next available free sector therefore inherently is multiple bits.*

10. *In regard to claim 27 Aasheim teaches:*

“A method (**e.g., Fig. 9**) of operating a non-volatile memory (**e.g., paragraph 73 in page 6; Fig. 8**), comprising: erasing the data content of a block of the non-volatile memory (**e.g., paragraph 105 in page 8**), wherein the block (**e.g., Block 0 in Fig. 4**)

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comprises a plurality of sectors (e.g., Sectors 402 in Fig. 4) each having a data portion (e.g., Data Area 403 in Fig. 4) and an overhead portion;" (e.g., Spare Area 404 in Fig. 4)

"verifying that the block is successfully erased;" (e.g., paragraph 71 in page 5). *For example Aasheim teaches that the blocks are erased or cleared to ensure that free space is available.*

"and writing an indication that the block is successfully erased into the overhead portion of a designated one of the sectors." (e.g., paragraph 106 in page 8). *For example the erase or clear pointers are used to point (e.g., to indicate) and keep track of blocks that are cleared.*

11. *In regard to claim 28 Aasheim teaches:*

"wherein said indication comprises a flag." (e.g., paragraph 106 in page 8). *For example the clear pointer represents the flag.*

ALLOWABLE SUBJECT MATTER

Claims 5-7, 13-26, and 30-32 are allowed.

1. *The primary reason for allowance of claims 5-7 in instant application is the combination with the inclusion of the following limitations: **wherein the data storage areas are organized into a plurality of units of erase, and wherein each of said blocks further contains an additional data storage area for overhead data portion of which having said second flag and not having said first flag.***

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3. *The primary reason for allowance of claims 13-15 in instant application is the combination with the inclusion of the following limitations: wherein during a sequential write process of data into two or more of said data storage areas, for each data storage area subsequent to the first, an indication of the write of the preceding data storage area is written into the current data storage area as part of its write process.*

4. *The primary reason for allowance of claims 16-20 in instant application is the combination with the inclusion of the following limitations: concurrently with said programming second content, writing to the second data storage area an indication that the first data storage area is correctly programmed*

5. *The primary reason for allowance of claims 21-26 in instant application is the combination with the inclusion of the following limitations: finding a first sector not indicated to be correctly programmed based upon content of the subsequent sector; and based on the content of the first sector itself, determining if the first sector is correctly programmed.*

6. *The primary reason for allowance of claims 30-32 in instant application is the combination with the inclusion of the following limitations: subsequently recording in the overhead portion of a second sector an indication that said altering the data content of at least a first sector is successfully completed*

: IMPORTANT NOTE :

*If the applicant should choose to rewrite the independent claims to include the limitations recited in either one of the claims, the applicant is encouraged to **amend the title of the invention** such that it is descriptive of the invention as claimed as required by sec. 606.01 of the MPEP. Furthermore, the **summary of invention** and the **abstract** should be amended to bring them into harmony with the allowed claims as required by paragraph 2 of sec. 1302.01 of the MPEP.*

As allowable subject matter has been indicated, applicant's response must either comply with all formal requirements or specifically traverse each requirement not complied with. See 37 C.F.R. § 1.111(b) and § 707.07(a) of the M.P.E.P.

Response to Applicant's Remarks

The Applicant's argument to the claim rejection presented in the previous Office Action is persuasive. Therefore, different prior art reference(s) are used in this Office action to overcome the Applicant's arguments.

Conclusion

The prior art made of record and not relied upon are as follows:

- 1. U. S. Patent No. 6,385,744 B1 to Ando et al. describes Data recording medium, data recording method and data reproducing method.*
- 2. U. S. Patent No. 6535949 B1 to Parker describes Portable electronic device having a log-structured file system in flash memory.*

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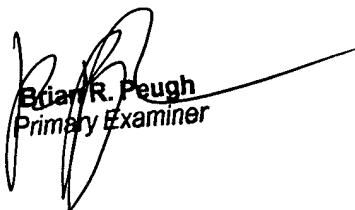
Any inquiry concerning this communication should be directed to Hashem Farrokh whose telephone number is (571) 272-4193. The examiner can normally be reached Monday-Friday from 8:00 AM to 5:00 PM.

If attempt to reach the above noted Examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Donald A Sparks, can be reached on (571) 272-4201.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either private PAIR or Public PAIR. Status information for unpublished application is available through Private PAIR only. For more information about PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBS) at 866-217-9197 (toll-free).


HF

2006-0819


Brian R. Peugh
Primary Examiner